

**CONFIDENTIAL**

## OPERATING INSTRUCTIONS

## MODEL D

*Copy 1 of 5*  
*Fid*  
*P-101 B*To Set Up

1. Place equipment upright (four rubber feet are provided) as close as feasible to the point at which the tripod will be located. Operate the equipment in the upright position only.
2. Remove the optical head from its holder and carefully uncoil the inter-connecting cable, avoid kinks in the cable, and, by turning the optical head, also prevent rotation of the cable within the units.
3. Mount the optical head on the tripod. The head may be turned to tighten it down on the tripod pan head. The optical head should be so oriented on the pan head that the sighting axis is at right angles to the elevation axis of the pan head.
4. Using a screwdriver or a suitable coin, release the "Dzus" fasteners holding the panel of the main unit. Remove the panel.
5. Remove the headphones, the headphone cable, and the microphone, which is stored in a clip above the charger rectifier. Notches are provided in the lower left and lower right-hand corners of the compartment opening for the headphone and microphone cables, respectively. Make certain that the cables are not fouled inside the unit, place them in their respective notches, and replace the compartment cover. Plug the headphone cable into the headphones. The equipment is now ready to be operated.

To Operate

1. Aim the optical head at the most probable location of the Model B equipment, using the open rifle-type sights provided. Correct aiming obtains when the front sight covers the "target" when viewed so that it also appears to rest in the "V-shaped" notch of the rear sight, as pictured below:

**CONFIDENTIAL**

If the location of the Model B unit is accurately known and can be seen, this aiming will be sufficiently accurate for operation within the range of the equipment.

25X1

25X1

1.

CONFIDENTIAL

2. Turn the function switch to the "F" position, the R-T switch to the "R" position, and adjust the gain control until a "rushing" noise is heard in the headphones. In this condition the receiver of the Model D is operating, and the lamp is on. Thus, the "find" signal of the Model B equipment may be heard by the Model D, and the transmitter beam of the Model D may be seen in the viewer of the Model B.
3. When the "find" signal of the Model B is heard, the aiming of the optical head may be adjusted slightly, if required, to obtain the best signal. To transmit a signal to facilitate aiming of the Model B, turn the R-T switch to the "T" position. The transmitter will then send a steady tone, and a side-tone will be heard in the headphones.
4. To establish communication after the aiming of the units has been accomplished, turn the function switch to the "OP" position, and the R-T switch to the "T" position. Hold the microphone about an inch from the mouth, and speak in a normal tone. Modulation is controlled by the gain control, which should now be adjusted so that the neon "MDD" indicator lights about half the time, and a rather faint side-tone is heard in the headphones.
5. To receive, turn the R-T switch to the "R" position, and re-adjust the gain control, if necessary. As the gain control affects both modulation percentage and receiver output, it will usually be convenient to set it to a compromise setting, and to control speaking distance and volume.

#### To Charge Batteries

1. Remove the compartment cover. This must be left off while the batteries are being charged. Remove the headphones, headphone cable, microphone, and charger line cord. Check to be certain that the link for setting the charger line voltage is in the correct position. Place the equipment in the upright position on a hard surface. Provide normal ventilation, and be careful not to block the ventilation holes in the bottom of the case.
2. Turn the function switch to the "C" position, and plug in the line cord. Hold the start switch closed for about 10 seconds. The neon "pilot" indicator will light, indicating that the batteries are being charged.
3. The charger will shut off when the batteries are fully charged.

#### To Secure

1. Remove the optical head from the tripod. Carefully coil the cable, forming three or four loops. Place the head in its holder. Be certain that the cable forms smooth curves that conform to the lay of the conductors.

CONFIDENTIAL

**CONFIDENTIAL**

2. Disconnect the cable from the headphones. Lay the unit so that the opening faces up, and place the microphone in its clip. Store the charger line cord, the headphone cable, and then the headphones. Replace the compartment cover. Lay the coils of the interconnecting cable on top of the unit, and secure the coil with tape, if desired.

#### To Service the Main Unit

1. Servicing of this unit may be facilitated by removing the six 6-32 x 5/16 screws holding the chassis to the case, raising the chassis until the bottom screw holes line-up with the top captive nuts, and then securing with two of the screws. In this way, normal grounding will be preserved, and interconnections can be maintained.
2. Adequate cable lengths are provided so that the power supply and the charger may be removed independently without disconnecting leads. Removal of these units is required for replacement of the vibrator and fuse, respectively.

#### To Service the Optical Head

1. The cover of the head must be removed to replace the lamp on the galvanometer fuse. Remove the four 4-40 x 1/4 screws, place the unit face down, and lift the cover straight up, until it clears the interior parts. Notice how the cable loops around the lamp socket and the terminal board. There should be sufficient interior cable length to force the cable away from the socket, thus preventing heat damage to the insulation.
2. To remove the lamp, unscrew the lamp cap, and grasp the bulb at the front and side, while pressing forward on the lamp socket. Turn the lamp counter-clockwise to unlock.
3. The galvanometer is locked in position by a 4-40 x 1/8 set screw (stainless steel). If the galvanometer has been removed, it must be adjusted to give proper modulation when it is replaced. Remove the transmitter filter by unscrewing the filter retainer. Place a sheet of tissue paper over the front of the objective, and place the equipment in the "F" and "R" condition. Rotate the galvanometer so that one-half of the objective aperture is illuminated, as seen through the tissue paper. Carefully lock the galvanometer in place.
4. The lead sulfide cell is locked in place by a 4-40 x 1/8 set screw. If the cell has been removed, it should be replaced so that the strip is horizontal in the operating position. This will produce a receiver beam higher than it is wide.
5. Transmitter and receiver objectives may be removed without necessitating realignment if the distances from the filter retainers to the mounting plate

**CONFIDENTIAL**

CONFIDENTIAL

- are measured, and if scribe marks are used to establish precise radial orientation. If focussing should require that the objectives be turned to a position that is not a multiple of  $360^{\circ}$  from the factory setting, re-collimation and re-alignment of the lamp may be necessary, due to the fact that the optical axes may not coincide with the mechanical axes of the objective cells. Accidental rotation of the cells is prevented by 4-40 x 1/8 set screws working through nylon plugs on the threads of the cells.
6. Azimuth adjustment of the front sight is provided for by slotted holes for the mounting studs.
  7. The cell mounting may be removed, but the clamps should be marked and replaced in the same position, or re-collimation may be required.
  8. When replacing the cover of the head, be certain that the interior loop of cable conforms to the lay of the conductors, and that there is sufficient length. Slip the cover on so that the cable clears the terminal board. Insert all four screws before tightening down.

CONFIDENTIAL

